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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,972	12/10/2003	Anilkumar Gunturu	350078.411	6455

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EXAMINER

DINH, KHANH Q

ART UNIT PAPER NUMBER

2151

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/731,972	Applicant(s) GUNTURU, ANILKUMAR	
	Examiner Khanh Dinh	Art Unit 2151	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-19 and 21-30 is/are rejected.
- 7) ☒ Claim(s) 7-9, 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-30 are presented for examination.

#### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6, 10-19, 21-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Gai et al., US pat. No.6,651,096.

As to claim 1, Gai discloses a method, comprising:

defining a plurality of first rules made up of relatively less complex second rules (see abstract, fig.4, col.6 line 32 to col.7 line 39);

defining a policy having at least some of the plurality of first rules and defining corresponding actions to undertake that are related to communication of a packet within a network (using access control list ACL, see col.7 lines 15-58);

converting the first rules into minterm representations and generating a bit mask for each of the second rules based on their presence in the minterm representations (see col.8 lines 7-49 and col.15 lines 15-57);

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using the generated bit masks and content in a header of the packet to evaluate the plurality of first rules in the policy and to determine a corresponding action to undertake (see col.16 lines 6-61).

As to claim 2, Gai discloses using the content in the header of the packet to evaluate the plurality of first rules includes using content in fields of a hypertext transfer protocol (HTTP) header of the packet (see col.2 lines 9-40 and col.8 lines 7-49).

As to claim 3, Gai discloses using content in the fields of the HTTP header of the packet includes using content from at least one of header value, header name, universal resource locator string, method, hostname, cookie, defined, and undefined fields of the HTTP header (see col.2 lines 9-40 and col.8 lines 7-49).

As to claim 4, Gai discloses defining the plurality of first rules made up of relatively less complex second rules includes defining the first rules by nesting the second rules using logical operators (see col.12 lines 8-62 and col.13 lines 25-65).

As to claim 5, Gai discloses defining the corresponding actions to undertake that are related to communication of the packet within the network includes at least one of defining forward, redirect, persist, reply error, and reset client actions for each set of matching first rules in the policy (see col.12 lines 8-62 and col.13 lines 25-65).

As to claim 6, Gai discloses converting the first rules into minterm representations includes converting the first rules into minterms having sums of products of the second rules, and storing the minterms in a minterm data structure (see col.8 lines 7-49 and col.15 lines 15-57).

As to claim 10, Gai discloses a method, comprising:

defining a plurality of complex rules made up of simpler rules and being indicative of actions to take relative to processing of a packet communicated within a network (see abstract, fig.4, col.6 line 32 to col.7 line 39);

converting the complex rules into minterm representations and generating a bit mask for each simpler rule based on the minterm representations of the complex rules (see col.8 lines 7-49 and col.15 lines 15-57);

examining header content of the packet; and using the header content of the packet and the bit masks to evaluate the complex rules represented as minterms, and determining which action to undertake relative to that packet in accordance with results of the evaluation (see col.16 lines 6-61).

As to claim 11, Gai discloses using the header content of the packet and the bit masks to evaluate the complex rules represented as minterms includes: determining which simpler rules correspond to the header content; determining the bit masks for these simpler rules and performing a logical operation on these bit masks to generate a new bit mask; and determining a complex rule that

matches the header content from a minterm identifiable from the new bit mask (see col.15 lines 15-57 and col.16 lines 6-61).

As to claim 12, Gai discloses generating the bit mask for each simpler rule includes generating bit position values in the bit mask based on whether a particular simpler rule is present in a minterm (see col.12 lines 8-62 and col.15 lines 15-57).

As to claim 13, Gai discloses placing simpler rules of similar rule type in a common data structure and searching each data structure for a specific rule that corresponds to the header content (see col.12 lines 8-62 and col.13 lines 25-65).

As to claim 14, Gai discloses defining the plurality of complex rules made up of simpler rules includes using a plurality of logical operators to relate a plurality of simpler rules to form at least one complex rule (see col.12 lines 8-62 and col.13 lines 25-65).

As to claim 15, Gai discloses a method, comprising:  
reducing a first rule into at least one minterm made of a plurality of second rules that are less complex relative to the first rule (see abstract, fig.4, col.6 line 32 to col.7 line 39);  
generating a bit mask for each of the second rules and for data from any field in a header of a packet, determining which second rules correspond to that data (see col.8 lines 7-49 and col.15 lines 15-57);  
applying a logical operation to the bit masks of the second rules corresponding to the data to

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obtain a new bit mask and determining an action to undertake related to the packet from a minterm validated via the new bit mask (see col.16 lines 6-61).

As to claim 16, Gai discloses applying the logical operation to the bit masks of the second rules to obtain the new bit mask includes applying an AND operation to these bit masks, and wherein determining the action to undertake from the minterm validated via the new bit mask includes identifying the minterm from a first non-zero bit position in the new bit mask (see col.15 lines 15-57 and col.16 lines 6-61).

As to claim 17, Gai discloses generating the bit mask for each of the second rules includes determining bit position values of the bit mask based on whether a particular second rule is present in a given minterm (see col.15 lines 15-57 and col.16 lines 6-61).

As to claim 18, Gai discloses examining data in fields of the header in addition to hostname, URL, and cookie fields and searching for second rules corresponding to this data in separate data structures organized according to rule types (see col.12 lines 8-62 and col.13 lines 25-65).

Claim 19 is rejected for the same reasons set forth in claim 1.

As to claim 21, Gai discloses that the instructions to use the generated bit masks and content in the header of the packet to evaluate the plurality of first rules in the policy and to determine the corresponding action to undertake includes instructions to: search for a second rule in each rule

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type database that corresponds to content in the packet and for second rules located by the searching, obtain the corresponding generated bit masks; apply a logical operation to the obtained bit masks to generate a new bit mask locate a first enabled bit position of the new bit mask, and designate a first rule in a minterm corresponding to that bit position as a match (see col.15 lines 15-57 and col.16 lines 6-61).

Claims 22-24 are rejected for the same reasons set forth in claims 10, 11 and 13 respectively.

As to claim 25, Gai discloses a means for communicating between a client device and a network component (see abstract, fig.4, col.6 line 32 to col.7 line 39).

Claim 26 is rejected for the same reasons set forth in claim 15.

As to claim 27, Gai discloses at least one of the data structure, first component, second component, and third component are located in a switch that can receive the packet (see col.12 lines 8-62 and col.13 lines 25-65).

As to claim 28, Gai discloses that the data structure includes a plurality of rule type data structures that correspondingly store second rules of similar rule types (see col.12 lines 8-62 and col.13 lines 25-65).

Claims 29 and 30 are rejected for the same reasons set forth in claims 2 and 4 respectively.



*Allowable Subject Matter*

3. Claims 7-9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Other prior art cited*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Moon, US pub. No.2007/0118339.
- b. Brown et al, US pat. No.5,941,947.
- c. Shoroff et al, US pat. No.6,381,602.

*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Dinh whose telephone number is (571) 272-3936. The examiner can normally be reached on Monday through Friday from 8:00 A.m. to 5:00 P.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung, can be reached on (571) 272-3939. The fax phone number for this group is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any response to this action should be mailed to:**

Commissioner for patents

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